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Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/SS/W.No.05/CSR-06/067c/CEMENT/2016-17 Date: 18.06.2016

TEST REPORT ON CEMENT

* CUSTOMER	:	**Asst. Executive Engineer**, Byatarayanapura Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
*NAME OF THE WORK	:	Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
*REFERENCE	:	BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
SAMPLE ID	:	Cement
SAMPLE RECEIVED ON	:	16.06.2016
PERIOD OF TESTING	:	16.06.2016 to 18.06.2016

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	28.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	140 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	490 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

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Quality Manager

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Job No.: CTCE/BBMPSS/W.No.05/CSR-06/067c/SAND-Gradation/2016-17 : 18.06.2016

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. Sambashiva,**
#04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.

*** Name of Work** : Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP,

Reference : BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016

Technical Reference : IS : 2386 Part 1 - 1963 RA-2007

Sample ID : Fine Aggregates

Sample Received on : 16.06.2016

Date of Testing : 18.06.2016

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	92.00	90-100	90-100	90-100	95-100
2.36	73.00	60-95	75-100	85-100	95-100
1.18	51.00	30-70	55-90	75-100	90-100
600 Micron	26.00	15-34	35-59	60-79	80-100
300 Micron	14.00	5-20	8-30	12-40	15-50
150 Micron	6.00	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

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Job No.: CTCE/BBMPSS/W.No.05/CSR-06/067c/AGG/GR/2016-17 : 18.06.2016

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. Sambashiva,**
#04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.

*** Name of Work** : Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

Reference : BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016

Technical Reference : IS : 2386 Part 1 -1963 RA-2007

Sample ID : Coarse Aggregates (40mm)

Sample Received on : 16.06.2016

Date of Testing : 18.06.2016

Total Wt. of Aggregates in gms= **7000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	97.64	95-100	85-100
20	36.86	30-70	0-20
10	15.36	10-35	0-5
4.75	1.07	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits.

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Job No.: CTCE/BBMPSS/W.No.05/STEEL/2016-17 18.06.2016

TEST REPORT ON REINFORCEMENT STEEL

Customer	:	**Asst. Executive Engineer**, Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	:	**Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
Name of the Work	:	Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	:	BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
Date of Test	:	18.06.2016
Technical Reference	:	IS: 1786-2008

Sl. No	Nominal size (dia) (mm)	Mass per metre (Kg/mtr)	TENSILE STRENGTH			Bend Test	Rebend Test
			0.20% proof stress/Yield stress N/mm^2	Tensile strength (Ultimate stress) N/mm^2	Elongation percent gauge length		
1	10	0.62	514	557	13.35	O.K	O.K

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Job No.: CTCE/BBMPSS/W.No.05/CSR-06/067c/CUBE/2016-17 27.06.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer** : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. Sambashiva,**
#04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.

*** Name of the work** : Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

*** Reference** : BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016

*** Sample ID** : Cement Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{15}

Compressive Strength as on : 7th day

Sample Received on : 27.06.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	20.06.2016	27.06.2016	8.110	253.6	11.27
2	20.06.2016	27.06.2016	8.225	260.5	11.58
3	20.06.2016	27.06.2016	8.347	270.5	12.02

* Information is furnished by the Customer/Representative

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Job No.: CTCE/BBMPSS/W.No.05/CSR-06/067c/CUBE/2016-17 28.06.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer** : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. Sambashiva,**
#04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.

*** Name of the work** : Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

*** Reference** : BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016

*** Sample ID** : Drain Concrete

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M_{20}

Compressive Strength as on : 7th day

Sample Received on : 28.06.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	21.06.2016	28.06.2016	8.235	335.5	14.91
2	21.06.2016	28.06.2016	8.339	346.3	15.39
3	21.06.2016	28.06.2016	8.475	356.3	15.84

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Job No.: CTCE/BBMP/SS/W.No.05/WMM/Gradation/2016-17 20.06.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

Agency : **Mr. Sambashiva,**
#04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.

Name of Work : Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

Reference : BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016

Date of Testing : 20.06.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **8415**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	185	185	2.2	97.8	95-100
22.4	2550	2735	32.5	67.5	60-80
11.2	1295	4030	47.9	52.1	40-60
4.75	1215	5245	62.3	37.7	25-40
2.36	1050	6295	74.8	25.2	15-30
0.600	990	7285	86.6	13.4	8-22
0.075	850	8135	96.7	3.3	0-8

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Job No.: CTCE/BBMP/SS/W.No.05/WMM/Gradation/2016-17 20.06.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

Agency : **Mr. Sambashiva,**
#04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.

Name of Work : Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

Reference : BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016

Date of Testing : 20.06.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 8285

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	160	160	1.9	98.1	95-100
22.4	2550	2710	32.7	67.3	60-80
11.2	1350	4060	49.0	51.0	40-60
4.75	1150	5210	62.9	37.1	25-40
2.36	1050	6260	75.6	24.4	15-30
0.600	920	7180	86.7	13.3	8-22
0.075	680	7860	94.9	5.1	0-8

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Job No.: CTCE/BBMP/SS/W.No.05/WMM/Gradation/2016-17 21.06.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

Agency : **Mr. Sambashiva,**
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Name of Work : Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

Reference : BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016

Date of Testing : 21.06.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **8410**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	165	165	2.0	98.0	95-100
22.4	2615	2780	33.1	66.9	60-80
11.2	1210	3990	47.4	52.6	40-60
4.75	1095	5085	60.5	39.5	25-40
2.36	1060	6145	73.1	26.9	15-30
0.600	995	7140	84.9	15.1	8-22
0.075	890	8030	95.5	4.5	0-8

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Job No.: CTCE/BBMP/SS/W.No.05/WMM/Gradation/2016-17 21.06.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

Agency : **Mr. Sambashiva,**
#04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.

Name of Work : Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

Reference : BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016

Date of Testing : 21.06.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **7830**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	150	150	1.9	98.1	95-100
22.4	2585	2735	34.9	65.1	60-80
11.2	1195	3930	50.2	49.8	40-60
4.75	1030	4960	63.3	36.7	25-40
2.36	995	5955	76.1	23.9	15-30
0.600	890	6845	87.4	12.6	8-22
0.075	685	7530	96.2	3.8	0-8

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Job No.: CTCE/BBMP/SS/W.No.05/WMM/Gradation/2016-17 22.06.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

Agency : **Mr. Sambashiva,**
#04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.

Name of Work : Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

Reference : BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016

Date of Testing : 22.06.2016

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **8200**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	220	220	2.7	97.3	95-100
22.4	2650	2870	35.0	65.0	60-80
11.2	1205	4075	49.7	50.3	40-60
4.75	1060	5135	62.6	37.4	25-40
2.36	990	6125	74.7	25.3	15-30
0.600	855	6980	85.1	14.9	8-22
0.075	720	7700	93.9	6.1	0-8

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Job No.: CTCE/BBMP/SS/W.No.05/WMM/AIV/2016-17 20.06.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
Name of the Work	Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	20.06.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	387	388	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	302	302	
4	Aggregate Impact value = percent fines	21.96	22.16	
	100* (W_2/W_1)%			22.06

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/SS/W.No.05/WMM/S-T/2016-17 20.06.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
Name of Work	Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	20.06.2016

Result : Flakiness Index = **12.13%**

Elongation Index = **13.80%**

Result : Combined Flakiness & Elongation index 25.93%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

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Job No.: CTCE/BBMP/SS/W.No.05/SDBC/AIV/2016-17 24.06.2016

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer, B**yatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
Name of the Work	Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	24.06.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	78	79	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	303	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	20.58	20.68	**20.63**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/SS/W.No.05/SDBC/Shape_T/2016-17 : 24.06.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	: **Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
Name of Work	: Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	: BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 24.06.2016

Result : Flakiness Index = **11.90%**

Elongation Index = **13.26%**

Result : Combined Flakiness & Elongation index **25.16%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/SS/W.No.05/SDBC/Stripping/2016-17 24.06.2016

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
Name of the work	Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	24.06.2016

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/SS/W.No.05/SDBC/Sp_Wa/2016-17 24.06.2016

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
Name of the Work	Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	24.06.2016

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2018	2019	2020	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1263	1264	1265	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2022	2023	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	752	758	758	
6	Weight of oven dried aggregate	W_4 g	2006	2003	2005	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.668	2.642	2.645	2.652
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.700	2.710	2.709	2.707
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.45%	0.95%	0.90%	0.76%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/SS/W.No.05/SDBC/Bitumen/2016-17 24.06.2016

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX
As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
NAME OF THE WORK	Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
SAMPLE I/D	Roads in Kogilu Layout in Ward No.05.
DATE OF TESTING	24.06.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	35.26	7.42	7.42	92.58	90-100
4.75	259.3	54.59	62.01	37.99	35-51
2.36	38.21	8.04	70.06	29.94	24-39
1.18	42.23	8.89	78.95	21.05	15-30
0.3	40.12	8.45	87.39	12.61	9-19
0.075	30.22	6.36	93.76	6.24	3-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	36.36	7.27	7.27	92.73	90-100
4.75	258.3	51.66	58.93	41.07	35-51
2.36	59.32	11.86	70.80	29.20	24-39
1.18	45.36	9.07	79.87	20.13	15-30
0.3	35.26	7.05	86.92	13.08	9-19
0.075	38.25	7.65	94.57	5.43	3-8

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Job No.: CTCE/BBMP/SS/W.No.05/SDBC/Bitumen/2016-17 25.06.2016

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX
As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. Sambashiva,** #04, 2nd Floor, 3rd Main, Chamundeswari Layout, Vidyaranyapura, Bangalore – 97.
NAME OF THE WORK	Improvements to Roads and Drains at surrounding areas (Babanagar) of Kogilu Layout in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
REFERENCE	BBMP/EE/BTP/WO/55/2016-17 Dated: 16.06.2016
SAMPLE I/D	Roads in Kogilu Layout in Ward No.05.
DATE OF TESTING	25.06.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474.2
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	25.80
7. Bitumen content in %	5.00	5.16
8. Average	**5.08**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	36.36	7.65	7.65	92.35	90-100
4.75	255.6	53.81	61.47	38.53	35-51
2.36	39.23	8.26	69.72	30.28	24-39
1.18	43.13	9.08	78.80	21.20	15-30
0.3	38.26	8.05	86.86	13.14	9-19
0.075	32.26	6.79	93.65	6.35	3-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	34.25	6.85	6.85	93.15	90-100
4.75	258.3	51.66	58.51	41.49	35-51
2.36	60.22	12.04	70.55	29.45	24-39
1.18	46.36	9.27	79.83	20.17	15-30
0.3	36.36	7.27	87.10	12.90	9-19
0.075	35.56	7.11	94.21	5.79	3-8

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